

## AMENDMENT

### IN THE CLAIMS:

Please amend the claims as shown:

1. (Currently Amended) A transparent and impact-resistant polymer material comprising a brittle matrix (I) having a glass transition temperature of greater than 0°C in which is dispersed a block copolymer (II) of formula B-(A)<sub>n</sub>, n being between 2 and 20, with a polydispersity of between 1.5 and 3, B being a polymer block with a flexible nature with a glass transition temperature of less than 0°C and with a polydispersity index of less than 2 and A being a polymer block with a stiff nature with a glass transition temperature of greater than 0°C, A being of the same nature as or compatible with the matrix, wherein the block copolymer (II) is obtained controlled radical polymerization in the presence of a nitroxide.
2. (Previously Presented) The material as claimed in claim 1, wherein the block copolymer has a polydispersity of between 1.8 and 2.7.
3. (Previously Presented) The material as claimed in claim 1, wherein the proportion of brittle matrix is between 0 and 95%.
4. (Currently Amended) The material as claimed in claim 3, wherein the proportion of brittle matrix is between 10 and 85% ~~and preferably between 10 and 85%.~~
5. (Previously Presented) The material as claimed in claim 1, wherein the brittle matrix is greater than 50% by weight of at least one polymer selected from the group consisting of poly(methyl methacrylate), polystyrene, poly(vinylidene fluoride), polyesters, polycarbonate, poly(vinyl chloride), polyamide, polyepoxides, polyethylene, polyacrylonitrile and their copolymers.
6. (Previously Presented) The material as claimed in claim 1, wherein A represents from 50 to 95% by weight of the total weight of the block copolymer (II).
7. (Previously Presented) The material as claimed in claim 6, wherein A represents from 60 to 90% by weight of the total weight of the block copolymer (II).

8. (Previously Presented) The material as claimed in claim 1, wherein B is a polyacrylate with a glass transition temperature of less than 0°C.

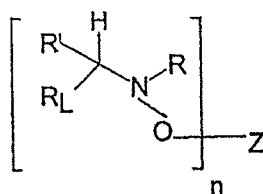
9. (Previously Presented) The material as claimed in claim 1, wherein A is a polymethacrylate with a glass transition temperature of greater than 0°C.

10. (Previously Presented) The material as claimed in claim 1, wherein the block B exhibits an average mass of greater than 5000 g/mol.

11. (Canceled)

12. (Currently Amended) A process for the preparation of the material of claim 1, comprising

(1) ~~in preparing~~ preparing the first block B by mixing the monomer(s) with an alkoxyamine of formula:



- where R' and R, which are identical or different, optionally connected so as to form a ring, are alkyl groups having between 1 and 40 carbon atoms optionally substituted by hydroxyl, alkoxy or amino groups;

- ~~and~~ where R<sub>L</sub> is a monovalent group with a molar mass of greater than 16 g/mol; and

where Z is a polyvalent radical carrying end functional groups of styryl or acryloyl, the other radicals having the same meanings as above;

adding a nitroxide, and

carrying out the polymerization ~~being carried out~~ at temperatures ranging from 60 to 250°C, for pressures ranging from 0.100 bar to 80 bar,

(2) ~~in diluting~~ diluting the first block B obtained in the mixture of monomers intended to form the ~~blocks~~ block A,

adding between 0 and 100 molar equivalents of a radical polymerization ~~initiator are added to said mixture~~ initiator, the choice of this ratio depends on the viscosity/impact-reinforcing compromise which it is desired to have,

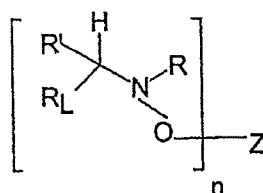
carrying out the polymerization ~~being carried out~~ at temperatures ranging from 60 to 250°C, for pressures ranging from 0.100 bar to 80 bar, the conversion of the monomer varies from 10 to 100%, and

separating the polymer obtained ~~is separated~~ from the residual monomers by evaporation under vacuum at temperatures ranging up to ~~250°C~~, 250°C,

(3) ~~in mixing~~ mixing the product obtained in step (2) ~~and with~~ the brittle matrix which it is desired to see reinforced against impact, optionally in the presence of other additives.

13. (Currently Amended) A process for the preparation of the material of claim 1, comprising

(1) ~~in preparing~~ preparing the first block B by mixing the monomer(s) with an alkoxyamine of formula:



- where R' and R, which are identical or different, optionally connected ~~so as~~ to form a ring, are alkyl groups having between 1 and 40 carbon atoms optionally substituted by hydroxyl, alkoxy or amino groups;

- ~~and~~ where R<sub>L</sub> is a monovalent group with a molar mass of greater than 16 g/mol; and

where Z is a polyvalent radical carrying end functional groups, the other radicals having the same meanings as above,

adding a nitroxide, and

carrying out the polymerization ~~being carried out~~ at temperatures ranging from 60 to 250°C, for pressures ranging from 0.100 bar to 80 ~~bar~~, bar;

(2) ~~in diluting~~ diluting the first block B obtained in the mixture of monomers intended to form the ~~blocks~~ block A,

adding between 0 and 100 molar equivalents of a radical polymerization initiator ~~are added~~ to this mixture, the choice of this ratio depends on the viscosity/impact-reinforcing compromise which it is desired to have, and

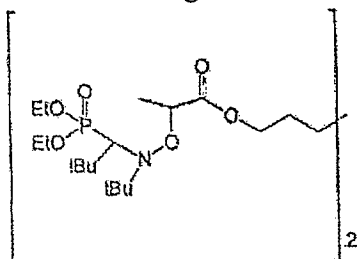
carrying out the polymerization ~~is being carried out~~ at temperatures ranging from 60 to 250°C, for pressures ranging from 0.100 bar to 80 bar, the conversion of the monomer

varies from 10 to 100%, and

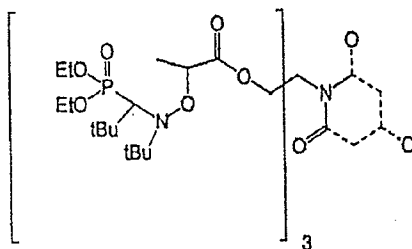
separating the polymer obtained ~~is separated~~ from the residual monomers by evaporation under vacuum at temperatures ranging up to 250°C,

(3) ~~in diluting~~ diluting the product obtained ~~in 2-step (2)~~ in a mixture of monomers selected from the group consisting of styrene, MMA, epoxides, mixtures of diols and of diacid, or precursors of polyamides' lactam or mixtures, diamine, diacids, ~~and in~~ and polymerizing the combination as described ~~in 2-step (2)~~.

14. (Currently Amended) The process as claimed in ~~claim 1~~ claim 12, wherein the alkoxyamine used corresponds to the following formula:



15. (Currently Amended) The process as claimed in ~~claim 1~~ claim 12, wherein the alkoxyamine used corresponds to the formula:



16. (Currently Amended) The process as claimed in ~~claim 2~~ claim 31, wherein the polydispersity is between 2 and 25.

17. (Currently Amended) The process as claimed in ~~claim 10~~ claim 34, wherein the average mass is greater than 20,000 g/mol.

18. (Currently Amended) The process as claimed in ~~claim 10~~ claim 34, wherein the average

mass is greater than 60,000 g/mol.

19. (Canceled)

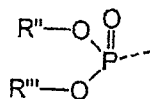
20. (Currently Amended) The process as claimed in claim 12, wherein the polymerization temperature in step (1) is from 90 to 160°C and the pressure is from 0.5 bar to 10 bar, the polymerization temperature in step (2) is from 90 to 160°C and the pressure is from 0.5 bar to 10 bar, and the evaporation temperature is 200°C.

21. (Currently Amended) The process as claimed in claim 13, wherein the polymerization temperature in step (1) is from 90 to 160°C and pressure is from 0.5 bar to 10 bar, the polymerization temperature in step (2) is from 90 to 160°C and pressure is from 0.5 to 10 bar, and the evaporation temperature is 200°C.

22-23. (Canceled)

24. (Previously Presented) The process as claimed in claim 12, wherein R and R' are tert-butyl groups

25. (Previously Presented) The process as claimed in claim 12 wherein R<sub>L</sub> is a phosphorus group or a phosphonate group of formula:



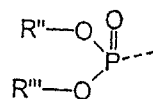
- where R'' and R''', which are identical or different, optionally connected so as to form a ring, are alkyl groups having between 1 and 40 carbon atoms optionally substituted by hydroxyl, alkoxy or amino groups.

26. (Previously Presented) The process as claimed in claim 12, wherein the brittle matrix is selected from the group consisting of PMMA, polyesters of PET or PBT, polystyrene, PVDF, polyamides, polycarbonates and PVC.

27. (Previously Presented) The process as claimed in claim 12, wherein the additives include an impact modifier.

28. (Previously Presented) The process according to claim 27, wherein the impact modifier is an acrylic impact modifier.

29. (Previously Presented) The process as claimed in claim 13 wherein  $R_L$  is a phosphorus group or a phosphonate group of formula:



- where  $R''$  and  $R'''$ , which are identical or different, optionally connected so as to form a ring, are alkyl groups having between 1 and 40 carbon atoms optionally substituted by hydroxyl, alkoxy or amino groups.

30. (Previously Presented) The process of claim 29 wherein  $R''$  and  $R'''$  are ethyl groups.

31. (New) The process of claim 12, wherein the block copolymer has a polydispersity of between 1.8 and 2.7.

32. (New) The process of claim 12, wherein the proportion of brittle matrix is between 10 and 85%.

33. (New) The process of claim 12, wherein the brittle matrix is greater than 50% by weight of at least one polymer selected from the group consisting of poly(methyl methacrylate), polystyrene, poly(vinylidene fluoride), polyesters, polycarbonate, poly(vinyl chloride), polyamide, polyepoxides, polyethylene, polyacrylonitrile and their copolymers.

34. (New) The process of claim 12, wherein the block B exhibits an average mass of greater than 5000 g/mol.